**WHAT IS CLAIMED IS:**

1   1.   A method for inspecting electronic components mounted on a
2   printed circuit board with a mounting substance, each of the components including
3   leads, endcaps or other interconnects, the method comprising:
4        imaging the components and the mounting substance on the printed
5   circuit board to obtain 3-D and 2-D data associated with the components and material
6   surrounding the components; and
7        processing the 3-D and 2-D data in combination to find the locations
8   of the components based on identified leads, endcaps, or other attributes as
9   differentiated from the mounting substance, circuit board and other material on which
10  the components are placed.

1   2.   The method as claimed in claim 1 wherein the mounting
2   substance is solder paste.

1   3.   The method as claimed in claim 1 wherein the mounting
2   substance is an adhesive.

1   4.   The method as claimed in claim 3 wherein the adhesive is a
2   glue.

1   5.   The method as claimed in claim 1 wherein the leads have feet
2   and wherein the step of processing includes the step of calculating centroids of the
3   feet.

1   6.   The method as claimed in claim 1 wherein the leads have feet
2   and wherein the step of processing includes the step of calculating average height of
3   the feet.

1   7.   The method as claimed in claim 1 wherein the step of
2   processing includes the step of calculating border violation percentage of the
3   mounting substance.

-40-

1    8.    The method as claimed in claim 1 wherein the step of
2    processing includes the step of pruning the board.

1    9.    The method as claimed in claim 1 wherein the step of
2    processing includes the step of pruning the leads from the mounting substance.

1    10.    The method as claimed in claim 1 wherein the step of
2    processing includes the step of processing the 3-D data together with upper and lower
3    threshold values to find the locations of the leads and the mounting substance.

1    11.    A system for inspecting electronic components mounted on a
2    printed circuit board with a mounting substance, each of the components including
3    leads, endcaps or other interconnects, the system comprising:
4        a 3-D scanner for imaging the components and the mounting substance
5    on the printed circuit board to obtain 3-D and 2-D data associated with the
6    components and material surrounding the components; and
7        a high-speed image processor for processing the 3-D data to find the
8    locations of the leads and the mounting substance and for processing the 2-D data
9    together with the locations of the leads and the mounting substance to distinguish the
10    leads from the mounting substance.

1    12.    The system as claimed in claim 11 wherein the mounting
2    substance is solder paste.

1    13.    The system as claimed in claim 11 wherein the mounting
2    substance is an adhesive.

1    14.    The system as claimed in claim 13 wherein the adhesive is a
2    glue.

1    15.    The system as claimed in claim 11 wherein the leads have feet
2    and wherein the high speed image processor also calculates centroids of the feet.

16.     The system as claimed in claim 11 wherein the leads have feet and wherein the high speed image processor also calculates average height of the feet.

17.     The system as claimed in claim 11 wherein the high speed image processor also calculates border violation percentage of the mounting substance.

18.     The system as claimed in claim 11 wherein the high speed image processor also prunes the board.

19.     The system as claimed in claim 11 wherein the high speed image processor also prunes the leads from the mounting substance.

20.     The system as claimed in claim 11 wherein the high speed image processor processes the 3-D data with the upper and lower threshold values to find the locations of the leads and the mounting substance.

21.     A method for inspecting electronic components mounted on a printed circuit board with a mounting substance, each of the components including a body and endcaps, the method comprising:
      imaging the components and material surrounding the components to obtain 3-D and 2-D;
      processing the 2-D and 3-D data to find locations of the endcaps; and
      further processing with the 2-D data to isolate the endcaps from their bodies.